moving at higher speeds and at greater distances from the reader. Moreover, the performance of systems based on the Company's RFID technology is not impaired by the presence of dirt on the tag or other environmental conditions such as rain, fog or snow. Negative environmental factors previously contributed to the failure of a bar code system for automatic identification of rail cars and intermodal containers in the 1970s.

The Company believes that it offers the only RFID system in which a single tag is designed to be read in multiple frequency bands. This "spectrum agile" capability provides the Company with a competitive advantage in certain of its targeted markets, particularly in the intermodal transportation market where equipment may pass through several countries whose regulatory authorities require the use of different frequency bands. In addition, the Company offers both an "active" tag, which is battery-powered, and a "passive" tag, which does not contain its own power source. The active tag increases the range of the RFID system, which is important in intermodal transportation and air freight applications. The passive tag eliminates batteries and other tag maintenance requirements and reduces the cost of the tags, which the Company believes is important to toll collection customers as well as to certain railroad and fleet management customers, who may require many thousands of the tags to automate identification of their cargo or fleet equipment.

An important complement to the Company's proprietary RFID hardware technology is computer software developed by the Company and its distributors and resellers to operate the RFID systems and enable a customer to collect and analyze the information gathered by the Company's RFID systems. The Company believes that its total systems approach will facilitate acceptance of its RFID products within the Company's targeted markets.

Industry and Markets

The five markets initially targeted by the Company for its RFID products and services are: rail transportation, electronic toll and traffic management, intermodal transportation, vehicle fleet management and access control, and air freight. The Company has developed products and services to address each of these markets, including identification hardware, such as tags, readers and field tag programmers, and software systems that range from simple reader control applications to large scale electronic toll collection systems. In addition, the Company provides a variety of support services.

Rail Transportation

The Company's RFID technology has two primary applications within the rail transportation market. The first application is automatic equipment identification ("AEI") systems. Present methods for identifying locomotives and rail cars require a clerk or video camera to record identification numbers as locomotives or rail cars enter or leave a rail terminal. This data must subsequently be entered manually into a computer and, therefore, is not immediately reported, may be incomplete, and is subject to data entry errors.

Employing the Company's technology, a railroad can install tags on locomotives and rail cars and install readers at rail terminals and selected intermediate points. As the locomotive or rail car passes the reader, the reader retrieves the identification information on the tag and forwards this information to the railroad's computer network. In read-write AEI systems, the reader can also "write" new data into the tag. The Company's AEI system thus enables the railroad to gather and disseminate data on a complete, accurate, and current basis, resulting in better customer service and improved asset utilization. See also "Industry Standards."

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A second application of the Company's technology, referred to as automatic train control ("ATC") systems, involves installation of readers on locomotives and tags, programmed with location data, between the rails of the track. By placing the tags at specified intervals and wayside control points, a railroad can obtain real-time information with respect to the location and movement of its rail equipment and use such information to maintain safe distances between trains and to ensure orderly flow of rail traffic on heavily traveled rail lines. The Company believes ATC systems will be more readily accepted in international markets in which passenger train traffic is substantial. The Company, therefore, has initially targeted these international markets for its ATC systems and is implementing pilot systems in certain of these markets.

In addition to RFID hardware, the Company has designed software to meet the special needs of the rail transportation market. For example, the Company has developed a system, including an auxiliary data processor and related software, to record the passage of a train and automatically report its locomotive and rail car composition and orientation to designated railroad computers to coordinate locomotive and rail car utilization. Other capabilities such as remote equipment diagnostics and the monitoring of wheel bearings for potential problems are included.

Electronic Toll and Traffic Management

Use of the Company's RFID technology for electronic toll and traffic management ("ETTM") typically involves installation of a reader at a toll booth and placement of a TollTag® electronic identification device inside a vehicle's windshield. Vehicles equipped with TollTag identification devices are identified by the reader as they approach the toll booth. This identification is passed to a lane control computer, which determines the validity of the device for use at that toll facility and, in turn, causes signal lights, alarms, or gates to be activated based upon the validity tests and allows a non-stop, cashless passage by the vehicle through the toll booth. The entire transaction, including date, time, lane number, and identification code, is passed to a central computer, which posts the transaction against the TollTag identification device user's account, resulting in a charge against a prepaid account, credit card or in an eventual billing.

The Company's ETTM systems do not, however, require either toll booths or interior windshield mounting of tags. Toll and revenue collection systems have recently been implemented using overhead readers on bridges and other structures, thus allowing accurate identification of vehicles and revenue collection at highway speeds and in open lane environments. The Company's ETTM systems also can operate using antennas buried in highway pavement, or tags located on vehicle license plates or bumpers.

In addition to ETTM hardware, the Company believes that it offers the most complete and sophisticated ETTM software system in the world. Functionally, this software system (1) records driver and vehicle information, (2) issues and validates new TollTag identification devices, (3) invalidates lost or stolen TollTag identification devices, (4) reads and validates transactions at toll booths, (5) captures and forwards transactions to the central billing computer, (6) posts transactions to drivers' accounts, (7) automatically bills drivers' accounts or credit cards for charges, (8) prints numerous accounting and other reports, (9) monitors each system component for failure every thirty seconds, and (10) performs system-wide diagnostics and reports any failures via telephone pagers to technicians. When combined with the Company's read-write hardware technology, the software system provides an effective replacement for the "ticket" common on toll facilities which utilize "distance traveled" as the basis for toll calculation. Time and location data written dynamically into the tag as the vehicle enters the toll highway is retrieved upon exit allowing immediate trip cost determination and display for the driver.

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ETTM provides convenience, reduced traffic congestion and automobile emissions, reduced collection costs, and, in some instances, discounted toll charges for vehicles equipped with TollTag identification devices. Due to these benefits, the Company believes that ETTM will become a prominent method of collecting tolls and revenues at major toll facilities and airports, and that the combination of its RFID technology and software system will give the Company a competitive advantage in this market.

The Intermodal Surface Transportation Efficiency Act of 1991 and the Intelligent Vehicle Highway Systems Act of 1991, passed by the Congress of the United States in December 1991, provide federal funds for the development of new toll facilities, conversion of existing free facilities to toll facilities, and the refurbishment of existing toll facilities, and includes provisions to encourage the use of ETTM systems such as those offered by the Company in achieving the goals of this legislation. The Company believes that this legislation may substantially expand the domestic ETTM market during the next five years.

The ETTM system can provide airports with the same benefits when used to collect fees from commercial vehicles (such as taxis, shuttle buses, and limousines) for use of roadway facilities. Several airport projects have already proven successful and cost effective.

Intermodal Transportation

Another market targeted by the Company is electronic identification of intermodal freight equipment including intermodal containers, chassis, tractors, and generator sets. The shipping, railroad, and trucking industries use intermodal containers to transport goods worldwide and currently have computer systems that attempt to monitor the location and disposition of these containers. Presently, each transfer of a container is generally recorded manually by a clerk who confirms the container number, type, and size. This data is subsequently input into a computer system in a process subject to human errors and with detrimental effects on the timely availability of data for equipment asset management and customer service.

With the Company's RFID technology, a firm engaged in intermodal transportation can install tags on its equipment, including containers, and utilize readers, at points of transfer and storage, to automatically identify each piece of equipment, its type and size, and immediately record the information accurately in a computer. Specifically, the Company's intermodal RFID system permits: (1) identification of equipment entering or exiting an intermodal container yard; (2) movements of equipment within the yard; and (3) transfers of intermodal equipment between the intermodal container yard, ships, rail cars, or other means of transportation. In addition, the Company has developed a mobile inventory vehicle system in which a vehicle that is specially equipped with a reader can drive through an intermodal container yard and automatically record the location of each piece of equipment. The Company also has designed software products to integrate the data collected by readers in its intermodal RFID systems into computer systems currently used by its customers. The Company's RFID system thus enables carriers, shippers, and consignees to obtain accurate and timely information on the status and location of their equipment and goods. Hence, the carriers can better service customers and enhance their own asset utilization.

The Company believes that it offers the only RFID system in which a single tag is designed to be read in multiple frequency bands. See "Technology." Since intermodal equipment may pass through several countries whose regulatory authorities require the use of different frequency bands, this "spectrum agile" capability of the Company's intermodal RFID system gives the Company a competitive advantage within this market.

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Vehicle Fleet Management and Access Control

The fourth market targeted by the Company is the vehicle fleet management and access control market. As with the rail and intermodal container markets, electronic identification of tractors, trailers, containers, converter dollies, and related equipment allows fleet operators to increase productivity, improve equipment utilization, eliminate clerical and data errors, enhance customer service, and control assets more effectively. Types of fleets include, among others, common and contract carriers of general commodities, specialized motor carriers, transit systems, taxicabs, police cars, and courier services. Other access control applications include gated communities, parking lots, airports and military bases, as well as various other types of secured facilities.

Automatic identification of equipment on arrival at a yard or terminal results in accurate and timely information for dispatch, yard operations, customer information services, and preventive maintenance. In certain cases, scale weight and unit identification can be automatically combined for compliance with highway weight limits. Mobile inventory vehicles, described above under "Intermodal Transportation," can significantly increase a carrier's efficiency in yard inventory control applications. The Company also offers software products designed for use in the vehicle fleet management and access control market, including yard access and control systems and software that tracks moving vehicles such as large trucks crossing state lines.

Air Freight

An additional market for the Company's products and services is aircraft freight equipment. This market includes Unit Load Devices ("ULDs"), which are widely used by air carriers around the world for transport of freight and baggage in aircraft holds, and the related ground equipment used to transport and handle the ULDs. The Company believes the ULD market to be analogous in nature to the intermodal freight container market since airlines face many of the same problems in identifying, tracking, and handling their ULDs as the shipping industry does with its intermodal containers. In addition, the Company believes that there is a growing trend to establish the use of intermodal containers for air transport. The Company believes its products can be readily adapted to the ULD market while retaining its technological competitive advantages of superior reading range and speed in difficult environmental conditions.

Software and Systems Integration

Once data has been retrieved by an automatic identification system, it must be integrated into a customer's primary computer system to be of significant use to the customer. Consequently, software products that serve this function are as important as RFID hardware in an operational RFID system. The Company has designed, and encouraged its distributors and resellers to design software products that gather, store, package, and forward the identification data captured by the Company's RFID hardware to computer systems currently used by customers. The Company's software products can interface with many computer systems used by companies in the transportation industry.

Other Services

In addition to RFID hardware and software products for the markets described above, the Company and its distributors offer various types of services, including facilities design, custom systems integration, field installation, maintenance, training, custom programming, facilities management, computer facilities management and computer hardware procurement, installation, and integration. Purchasers of the Company's RFID systems may contract with the Company or its distributors for one or more of these services to suit their particular needs.

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Industry Standards

In September 1991, the Association of American Railroads ("AAR") voted to make its previously voluntary standard on automatic equipment identification, which is based on the Company's radio frequency product line, mandatory, effective early in 1992. There will be an implementation period ending by June 30, 1994, under which all rail cars and locomotives operating in interchange service in North America (Canada, the United States and Mexico) are required to be tagged. Based on information provided by the AAR, the Company believes that there are approximately 1.4 million pieces of rail equipment subject to the standard and presently in interchange service. The AAR standard states that each piece of rolling stock is to be equipped with two tags. Additionally, the railroads are expected to install reader systems throughout their networks to record equipment movement activity. The impact of this development on the Company's revenues during the implementation period will depend on, among other things, how the carriers and rail car owners schedule the implementation, the availability of railroads' capital funding in any given period, and the AAR maintaining the mandatory AEI standard substantially in its present form. The Company has committed to the AAR that it will license the necessary technology to qualified companies, if requested and on reasonable commercial terms, so that alternate sources of products complying with the AEI standard could be available.

The Association of American Railroads has designated a competing technology to be a "Voluntary Recommended Standard" for automatic train control systems in the United States and Canada. This technology has not, however, been implemented in North America. See "Industry and Markets".

In June 1989 the International Standards Organization ("ISO"), after extensive examination and testing of remote identification technologies, gave initial approval of a Draft International Standard which specifies technical requirements for automatic identification of intermodal containers worldwide. In April 1991 this standard gained formal approval and was published as International Standard 10374 in October 1991. This follows publication of a similar standard by the American National Standards Institute (ANSI MH5.1.9-1990 in October 1990). The Company's RFID technology meets the present technical specifications of both standards.

In August 1990 the American Trucking Association ("ATA") gave final approval to a standard for automatic identification of tractors, trailers, and related motor carrier equipment based upon the Company's proprietary RFID technology.

Although of these standards only the AAR AEI standard is mandatory, taken together, they provide compatible multimodal industry-wide standards for automatic equipment identification covering the major modes of surface commercial transportation.

Customers

During the year ended December 31, 1991, the Oklahoma Turnpike Authority accounted for 34% of the Company's sales. During the year ended December 31, 1990, the Oklahoma Turnpike Authority and SNCF (French National Railroad) accounted for 28% and 13% of the Company's sales, respectively. During the year ended December 31, 1989, American President Lines, Ansaldo Transporti S.p.A., formerly WABCO Westinghouse Compagnia Italiana Segnali S.p.A., SNCF, the Louisiana Department of Transportation and Development, and Mitsubishi Corporation accounted for 20%, 13%, 12%, 11%, and 10% of the Company's sales, respectively. During these periods, no other customer accounted for 10% or more of sales. The Company's RFID systems have been or are presently being installed in a number of foreign countries. Export sales accounted for approximately 26%, 30% and 42% of the Company's sales during the years ended December 31, 1991, 1990 and 1989, respectively.

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During the year ended December 31, 1991, sales in North America, the Far East, and Europe accounted for 76%, 3% and 21% of the Company's sales, respectively. During the year ended December 31, 1990, sales in North America, the Far East, and Europe accounted for 71%, 6% and 23% of the Company's sales, respectively. During the year ended December 31, 1989, sales in North America, the Far East and Europe accounted for 59%, 10% and 31% of the Company's sales, respectively.

Marketing and Distribution

The Company generally markets, sells, and services its products through select distributors, dealers and subdistributors, and directly or as a subcontractor on certain contracts. The Company has enlisted a number of qualified distributors and dealers for the sale and support of the Company's products worldwide.

The marketing and distribution agreements between the Company and each of its distributors and dealers vary in term and generally obligate the Company to provide personnel support to install its products and train operating personnel and require the distributor to purchase an initial demonstration system, to obtain all governmental clearances or licenses for particular installations of the Company's products, and to obtain prior written consent of the Company to any sales efforts of the distributor outside of its specified applications market or territory. The marketing and distribution agreements also generally contain provisions to protect the Company's proprietary information. Although the agreements are generally non-exclusive, the Company has granted certain exclusive rights to certain of its distributors. See also "Manufacturing" and "Joint Ventures."

Manufacturing

The Company's research and development, product engineering, and manufacturing operations are located in two facilities aggregating approximately 27,000 square feet in Santa Fe, New Mexico, and a smaller facility of 11,500 square feet in Albuquerque, New Mexico. In the manufacturing area, the Santa Fe facilities are used primarily for the production and testing of tags, reader systems, programmers, and related products. Tag printed circuit boards had been obtained on a subcontract basis, but the Company acquired the business operations and assets previously used for this subcontract work on January 31, 1991 and since then has performed this work itself. As production requirements increase, tag production may be shared with subcontractors who meet the Company's quality control and cost requirements. In all cases, final testing and shipment is handled at the Company's Santa Fe facilities. The Company generally purchases devices, components, and subassemblies from more than one source.

The Company will invest in additional automated production equipment during 1992 in order to increase its manufacturing capacity to meet expected production requirements in 1992 and later years, particularly for rail tag demand as a result of the mandatory AAR standard.

The Company maintains quality control procedures for its products, including testing during design, prototype, and pilot stages of production, inspection of incoming raw materials and subassemblies, and testing of finished products using automatic test equipment. The Company has initiated the certification process for both the International Standards Organization ISO 9001 quality standard and the Association of American Railroads Quality Standard M-1003. The Company is actively engaged in quality assurance programs throughout the organization. The Company's general terms and conditions for sale of tags, readers, and related hardware include a one-year warranty. The Company generally warrants that certain of its software products will conform to the applicable software product description at the time that an order is accepted. To date, warranty costs have not been material.

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In connection with the uniform standards approved by the AAR, ANSI and ISO, the Company has consented to offer field patent licenses for its RFID technology on reasonable terms to qualified manufacturers for defined applications of its proprietary technology.

In June 1988 the Company granted an exclusive license to Mitsubishi Corporation to manufacture and market certain of the Company's products in Asia for a ten year term. In return for the grant of the license, the Company is entitled to receive payments on integrated circuit chips sold to Mitsubishi for the manufacture of certain RFID products. The Company in October 1991 entered into an agreement with its affiliate, Alcatel Amtech S.A., to grant it certain exclusive and non-exclusive licenses to manufacture certain of the Company's products for the rail, trucking and intermodal container markets in greater Europe and parts of Africa. In addition, the Company has licensed Ansaldo Transporti S.p.A. to manufacture certain read-write products in Europe. No manufacturing activities have taken place pursuant to any of such licenses to date, although it is anticipated that Alcatel Amtech S.A. will initiate production of certain products in the European Economic Community during 1992.

The Company's backlog, calculated as the aggregate of sales prices of orders received from customers less revenue recognized, was approximately $5.3 million at December 31, 1991, as compared with $2.6 million at December 31, 1990.

Joint Ventures

In October 1991 the Company entered into a joint venture with Alcatel AVI S.A., a subsidiary of Alcatel N.V. The resulting company, named Alcatel Amtech S.A., is owned approximately 51% by Alcatel AVI S.A. and 49% by the Company. As part of the formation of the joint venture, the Company transferred its shares of Amtech SARL, formerly a wholly owned European subsidiary of the Company, to Alcatel Amtech S.A. Alcatel Amtech S.A. has exclusive and non-exclusive rights to develop, manufacture, market and service certain of the Company's products for public and private passenger and freight transportation applications (other than road toll, parking and road pricing applications and excluding industrial automation applications) throughout greater Europe and parts of Africa, with an initial focus on the rail and related transportation market. This joint venture will allow the Company to substantially consolidate its European operations formerly conducted through Amtech SARL, Amtech GmbH and Amtech B.V. into Alcatel Amtech S.A.

The Company received substantial payments in connection with the formation of the joint venture company (See Note 11 to Consolidated Financial Statements) and, in addition to its continuing equity interest in Alcatel Amtech S.A., it is entitled to receive an additional $2,000,000 upon completion of certain new product development work (which amount shall be provided by the Company's joint venture partner, Alcatel AVI S.A.) and up to a further $5,000,000 based on Alcatel Amtech S.A.'s use of integrated circuit chips using the Company's proprietary technology. The Company anticipates that the $2,000,000 payment will be received in 1992.

Separately, the Company along with American President Companies, Ltd., Mitsubishi Corporation and Union Pacific Technologies (a subsidiary of Union Pacific Corporation) are stockholders in Amtech Logistics Corporation ("ALC"). The initial business strategy of ALC, which has not yet begun active operations, will be to offer data and related management information from the Company's customers' installed reader base to carriers and other interested parties. The Company has entered into a license agreement with ALC which provides ALC with the rights to this information. The Company owns approximately 31% of ALC's outstanding stock.

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Research and Development

Research and development expenses amounted to approximately $4,762,000. $4,854,000, and $3,563,000 in 1991, 1990 and 1989, respectively. Included in these amounts were approximately $2,798,000, $2,305,000 and $849,000 of research and development expenditures charged to cost of sales in the 1991, 1990 and 1989 consolidated financial statements, respectively, pursuant to customer contracts. Although the Company spends significant sums on research and development, there can be no assurance that the Company's new product development efforts will be successful. As of December 31, 1991, the Company employed approximately 50 people in research and development, software development and product engineering.

Patents and Trademarks

The Company holds fourteen issued patents in the United States, thirteen issued foreign patents, and eight allowed foreign patent applications covering various aspects of its RFID technology. The Company continues to pursue a program of international patent application filings. The Company currently has a variety of patent applications pending in Australia, Canada, Israel, Japan, Norway, South Korea, Taiwan, and the European Patent Office (Belgium, France, Italy, the United Kingdom, Germany, The Netherlands, Sweden, and Switzerland). These patents and pending patent applications cover, among other things, the structure and circuitry of the Company's tags and reader systems, as well as the "modulated backscatter" communication protocol by which the tags and readers communicate. Certain licenses to the patented technologies have been granted. See "Manufacturing."

The Company also relies on contracts, copyrights, trademarks, and trade secret laws to establish and protect its proprietary rights and to maintain the confidentiality of trade secrets, proprietary information, and creative developments, although there can be no assurance that the Company's patents, contracts, copyrights, and other rights will adequately protect its interests. The Company's logo, "AMTECH®," and the mark, "TollTag®", are registered trademarks of the Company in the United States (and, in the case of AMTECH®, in certain European countries) and are the subject of registration applications in certain foreign countries.

Competition

The market for the Company's products is characterized by competing forms of electronic identification technology and industry standards. The Company believes that the principal competitive factors in its targeted markets are product performance and quality, reliability, compatibility with host computer systems, technical support and service, and price. The Company believes that it has certain competitive advantages, including its relative product performance in accuracy and reading range, product capabilities due to spectrum agility and deliverable software products, compatibility with established industry standards, established domestic and international distribution channels, and a significant base of operating systems on a commercial scale. Some of the Company's existing and potential competitors may have greater financial, marketing, and technological resources than the Company and, therefore, no assurance can be given that the Company will continue to compete effectively in its targeted markets.

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Government Regulation

The Federal Communications Commission ("FCC") regulates the radio frequency emissions of RFID products in the United States. The FCC requires, pursuant to temporary regulations, that each site at which the Company's products are to be installed or used receive an operating license. Many foreign jurisdictions also require "type" approval by regulatory agencies prior to the sale or shipment of RFID products as well as an operating license for each site. To date, the Company's products have been demonstrated to operate well within the regulatory standards in all countries in which the products have been tested, type approvals have been obtained in many of the major industrial nations in the world, and the Company believes that its products can be readily adapted to applicable regulations in most, if not all, other countries. Further, the Company's products operate within established standards for radio frequency non-ionizing radiation emissions promulgated by, among others, the American National Standards Institute, the Occupational Safety and Health Administration and the International Electrotechnical Commission. The Company, however, cannot predict the extent or impact of future legislation or regulation by federal, state or local authorities in the United States or foreign countries. Further, pursuant to FCC regulations, the Company's products must avoid interfering with certain transmissions in the 902-928 megahertz frequency band and are subject to possible interference from other radio facilities operating in that band in the United States.

Employees

As of December 31, 1991, the Company employed 193 people. None of the Company's employees is subject to collective bargaining agreements. The Company believes that relations with its employees are good.

Item 2. Properties

The Company leases approximately 56,000 square feet of space for its corporate offices in Dallas, Texas under a lease that commenced in November 1990 and has a five-year term with two one-year renewal options. The Company also leases approximately 2,800 square feet of space in Dallas as a sales office for distribution of TollTag identification devices for the Dallas North Tollway project. The Company leases approximately 27,000 square feet of space for its research and development, product engineering, and manufacturing operations in two facilities at Santa Fe, New Mexico, with the lease for the primary facility expiring July 31, 1992 subject to one five-year renewal option, and leases a smaller facility of approximately 11,500 square feet in Albuquerque, New Mexico.

The Company believes that its existing facilities are adequate to meet current requirements.

Item 3. Legal Proceedings

None.

Item 4. Submission of Matters to Vote of Security Holders

None.

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PART II

Item 5. Market for Registrant's Common Equity and Related Stockholder Matters

The Company's Common Stock, $.01 par value (the "Common Stock"), is traded on the NASDAQ National Market System under the symbol "AMTC". The Company effected a three for two split of its Common Stock in the form of a stock dividend, which was distributed on February 13, 1992 to stockholders of record on January 24, 1992. As of February 14, 1992, there were 10,150,143 shares of Common Stock outstanding held by approximately 500 stockholders of record. The Company has not declared any cash lividends on its Common Stock, nor are any currently anticipated.

The high and low sales prices of the Common Stock as quoted by the NASDAQ National Market System, and as adjusted for the stock split, for the years ended December 31, 1991 and 1990 were:

	1991 Sales Price		1990 Sales Price	
Quarter Ended	High	Low	High	Low
March 31	$ 8.67	$ 6.00	$ 14.17	$ 8.83
June 30	$ 10.67	$ 7.33	$ 13.50	$ 9.50
September 30	$ 13.50	$ 8.33	$ 13.33	$ 5.75
December 31	$ 19.50	$ 12.50	$ 7.67	$ 5.17

The closing price of the Common Stock as reported by the NASDAQ National Market System on February 14, 1992 was $25.00.

Item 6. Selected Financial Data

The following table (page 13) sets forth certain financial information with respect to the Company and its predecessor (the "Predecessor") as of and for the period from March 10, 1987 (inception) through December 31, 1987, and the years ended December 31, 1988, 1989, 1990 and 1991, which was derived from audited consolidated financial statements and notes thereto of the Predecessor or the Company. The consolidated financial statements and notes thereto as of December 31, 1991 and 1990, and for the years ended December 31, 1991, 1990, and 1989, and the report of Ernst & Young thereon are included elsewhere in this Annual Report. The Company effected a three for two split of its Common Stock in the form of a stock dividend, which was distributed on February 13, 1992 to stockholders of record on January 24, 1992. Share and per share amounts for all periods presented have been adjusted to reflect the split. The selected financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and notes thereto included elsewhere herein.

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Selected Financial Data (cont.)

(In thousands, except per share data)

	Year Ended December 31,				
	1987(1)	1988	1989	1990	1991
Statement of Operations Data:					
Sales	$ 258	$ 1,383	$ 6,017	$ 14,770	$ 18,748
Cost of sales	252	1,021	4,012	10,123	11,563
Gross profit	6	362	2,005	4,647	7,185
Operating expenses:					
Research and development	1,060	2,750	2,714	2,835	1,963
Marketing, general and administrative	1,343	4,348	6,976	10,654	10,640
Charge for purchase of in-process research and development	855	–	–	–	–
Total operating expenses	3,258	7,098	9,690	13,489	12,603
Operating loss	(3,252)	(6,736)	(7,685)	(8,842)	(5,418)
Interest income	123	281	421	1,181	433
Contract settlement	–	–	–	687	–
Net loss	$ (3,129)	$ (6,455)	$ (7,264)	$ (6,974)	$ (4,985)
Loss per common share(2)	$ (1.01)	$ (1.21)	$(1.02)	$ (0.71)	$ (0.50)
Weighted average shares outstanding(2)	3,113	5,343	7,121	9,760	9,927
Balance Sheet Data:					
Working capital	$ 2,506	$ 3,982	$21,163	$13,556	$13,554
Total assets	4,349	7,459	27,191	22,269	22,991
T tal stockholders' equity	3,758	6,266	25,524	18,925	15,965

(1) Statement of operations data is for the period from March 10, 1987 (inception) through December 31, 1987. Summarized operating results for the Predecessor for the period from January 1, 1987 through March 18, 1987, are as follows (in thousands):

Sales	$252
Cost of sales	$130
Operating expenses	$186
Net loss	$ 64

(2) The Company completed an initial public offering in November, 1989, in connection with which all outstanding shares of Preferred Stock were converted into shares of Common Stock. For periods prior to the initial public offering, the number of shares used in the calculation of net loss per share is computed as if all of the outstanding shares of Preferred Stock, including shares issued as stock dividends on the Preferred Stock, were converted into Common Stock. The number of shares used in the calculation of net loss per share further assumes no exercise of outstanding employee stock options, except for certain antidilutive stock options with respect to 224,400 shares of Common Stock granted in March, 1989, the exercise of which has been assumed. Utilizing the treasury stock method of computing the weighted average number of shares, the assumed exercise of the options granted in March, 1989, results in a net increase of 62,487 shares in the weighted average number of shares presented for the periods ending December 31, 1987 and 1988, a net increase of 63,563 shares for the period ending December 31, 1989, a net increase of 70,263 shares for the period ending December 31, 1990, and a net increase of 62,520 shares for the period ending December 31, 1991. Share and per share amounts for all periods presented have been adjusted to reflect the Company's February 1992 three for two Common Stock split. See Note 1 to consolidated financial statements included elsewhere herein.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

OVERVIEW

The Company's financial results are characterized by an increasing world-wide demand for products and services involving radio frequency electronic identification technology in the transportation industry. From inception, the Company's sales have steadily risen as sales volumes have increased resulting from acceptance of the Company's technology by large scale end users and industry standard setting bodies, aided by an expanding network of distributors and dealers. The Company's products and services include proprietary manufactured RFID products, third party equipment, related installation, maintenance and training services and new product development contracts. Gross profit margins realized on the Company's sales may be affected by the relative sales mix from one period to another. Margins on the Company's proprietary manufactured products are generally higher than those realized from sales of other equipment and services. The Company generally markets its products through distributors and dealers; however in certain circumstances, direct end user sales are made which may result in higher margins in individual cases.

Significant expenditures have been incurred for product research and development, for marketing efforts to establish the Company's technology as the leading identification technology in its targeted markets and generally to build an organization to facilitate the management of the Company's anticipated growth. Sales volumes have not yet reached a level required to support these operating expenses and to achieve manufacturing economies of scale necessary to obtain normal margins and profitability.

The Association of American Railroads has made its previously voluntary standard on automatic equipment identification mandatory as of early 1992. This standard, which is based on the Company's radio frequency product line, is expected to have a positive effect on the Company's revenue growth. See "Industry Standards."

RESULTS OF OPERATIONS

Comperison of the Year Ended December 31, 1990 to the Year ended December 31, 1991

Sales — The increase in sales of $3,978,000 or 27% is primarily attributable to an increase is the sales volume of the Company's proprietary manufactured products. Also contributing to the increase was further product sales and installation of an electronic toll collection system on a statewide turnpike system, and increased operations at the Dallas North Tollway system.

Cost of Sales and Gross Profit — Gross profit as a percentage of sales increased from 31% in 1990 to 38% in 1991. This increase was primarily due to increased sales of the Company's proprietary manufactured products and, to a lesser extent, the manufacturing economies of scale gained from increased production volumes.

Research & Development — Research and development expenditures decreased by 2% from $4,354,000 in 1990 to $4,762,000 in 1991, primarily attributable to a reduction of professional and consulting fees from $491,000 in 1990 to $81,000 in 1991 due to the reduced requirement for outside consultants on the current year's projects in connection with customer contracts for new products, and general cost controls. This decrease was partially offset by an increase in research tools and supplies consumed from $586,000 in 1990 to $811,000 in 1991. Research and development expenditures of $2,305,000 in 1990 and $2,798,000 in 1991 were included in cost of sales pursuant to customer contracts, which includes expenditures of $2,305,000 in 1990 and $1,946,000 in 1991

relating specifically to certain research and development arrangements with customers for new products.

Marketing, General and Administrative — In the aggregate, marketing, general and administrative expenses decreased from $10,654,000 in 1990 to $10,640,000 in 1991. Employee compensation expenses rose from $4,772,000 in 1990 to $5,416,000 in 1991 partly due to the full year effect in 1991 of the 1990 expansion of the sales and support office in Paris, France (Amtech SARL) and opening of a sales and support office in Eindhoven, The Netherlands. Also, employment contracts with certain executive officers provided for increases in their 1991 salaries over 1990 amounts. Occupancy costs increased from $537,000 in 1990 to $896,000 in 1991 as a result of the expiration of the Company's lease and relocation to other, expanded corporate facilities in November 1990. The European sales and support offices helped reduce the requirements for international travel leading to a decrease in travel and entertainment expenses from $1,241,000 in 1990 to $925,000 in 1991. Professional and consulting fees decreased from $941,000 in 1990 to $684,000 due to overall cost controls and Company personnel administering more of the Company's requirements.

The transfer of Amtech SARL's operations to the Alcatel Amtech S.A. joint venture coupled with the related consolidation into Alcatel Amtech S.A. of the activity of the sales and support office in Eindhoven, The Netherlands in early 1992 will produce a downward effect on 1992 marketing, general and administrative expenses. Additionally, employment contracts with certain retiring executive officers have been replaced with consulting contracts at reduced levels of compensation.

Interest and Other Income — Interest income decreased 63% from $1,181,000 in 1990 to $433,000 in 1991 primarily resulting from the reduction in cash available for investment during most of 1991 coupled with an overall decline in the interest rates earned on short-term money market funds.

Other income in 1990 included a non-recurring $687,000 compensatory payment made by the government of Norway as a result of its cancellation of the Company's contract with an entity owned by the City of Oslo. The proceeds reimbursed the Company for costs incurred in bidding on and preparing to implement the contract.

Comparison of the Year Ended December 31, 1989 to the Year ended December 31, 1990

Sales — Sales increased by 145% from $6,017,000 in 1989 to $14,770,000 in 1990. Sales in 1989 included further shipments of a toll collection system that began in late 1988, installation of a project site system for an intermodal application, new product development contracts, and delivery of additional evaluation systems to approximately 30 customers. Sales in 1990 included the sale of a turnkey automatic vehicle identification system at a major U.S. airport, an electronic toll collection system on a statewide turnpike system, additional new product development contracts, and increased activity from a full year of operations at the Dallas North Tollway system.

Cost of Sales and Gross Profit — Gross profit as a percentage of sales decreased from 33% in 1989 to 31% in 1990, primarily due to several lower margin engineering and market development contracts. Additionally, even though the aggregate sales of the Company's proprietary products increased from 1989 to 1990, these sales decreased in their relative proportion to total sales partly because of significant revenues realized from systems integration services and new product development contracts. This decrease in the gross profit margin was partially offset by certain large scale turnkey commercial installations and to a lesser extent the manufacturing economies of scale gained from increased production volumes.

Research & Development — Research and development expenditures increased 36% from $3,563,000 in 1989 to $4,854,000 in 1990, primarily attributable to an increase in employee compensation expense from $2,306,000 in 1989 to $2,798,000 in 1990. The number of research and development personnel increased to meet market demands for new products and enhancements in addition to the manpower required to support specific customer product development contracts. The increase in the activity associated with these new product development contracts also contributed to an increase in expenditures for research tools and supplies from $344,000 in 1989 to $586,000 in 1990. Research and development expenditures of $849,000 in 1989 and $2,395,000 in 1990 were included in cost of sales pursuant to contracts with customers for new products.

Marketing, General and Administrative — Marketing, general and administrative expenses increased 53% from $6,976,000 in 1989 to $10,654,000 in 1990. The Company continued in 1990 to build its marketing, general and administrative functions to support anticipated future growth. Employee compensation expenses increased from $3,294,000 in 1989 to $4,772,000 in 1990, primarily as a result of the addition of personnel, including the expansion of the sales and support office in Paris, France, and the opening of a sales and support office in Eindhoven, The Netherlands. Also contributing to the increase in employee compensation expenses were employment contracts with certain executive officers that provided for increases in their previous salaries. Travel and entertainment expenses, which include costs associated with representation at trade shows and demonstration and marketing of the Company's products to prospective domestic and international customers and distributors, increased from $781,000 in 1989 to $1,241,000 in 1990. Also contributing to the increase was occupancy costs, which increased from $324,000 in 1989 to $537,000 in 1990 as a result of the expiration of the Company's lease and relocation to other, expanded corporate facilities in November 1990 and the costs related to the foreign sales and support offices.

Interest and Other Income — Interest income increased 181% from $421,000 in 1989 to $1,181,000 in 1990 primarily as a result of additional short-term investments made using cash received from the Company's initial public offering in November 1989.

Other income in 1990 includes a $687,000 compensatory payment made by the government of Norway as a result of its cancellation of the Company's contract with an entity owned by the City of Oslo. The proceeds reimbursed the Company for costs incurred in bidding on and preparing to implement the contract.

LIQUIDITY AND CAPITAL RESOURCES

The Company satisfied its liquidity needs during 1991 principally from cash on hand at the beginning of the year, reduction in accounts receivable, the receipt of approximately $6,000,000 in conjunction with the formation of the Alcatel Amtech S.A. joint venture (see Note 11 to the Company's Consolidated Financial Statements) and the exercise of employee stock options.

The Company expects to invest approximately $1,000,000 in 1992 for capital expenditures, the majority of which will be incurred for additional automated production equipment which will increase manufacturing capacity to meet expected production requirements, particularly for anticipated rail tag demand resulting from the AAR mandatory standard. There were no significant commitments for capital expenditures as of December 31, 1991.

At December 31, 1991, working capital of $13,554,000 remained relatively unchanged as compared to December 31, 1990. Additionally, the Company expects to receive an additional $2,000,000 in 1992 pursuant to the Alcatel Amtech S.A. joint venture agreement, upon the Company's completion of certain new product development work. The Company believes that revenues from operations, together with existing liquid assets and available sources of financing, will be sufficient to fund the Company's 1992 working capital requirements.

Item 8. Financial Statements and Supplementary Data

The information required by this item begins on page F-1 hereof.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

PART III

Item 10. Directors and Executive Officers

The information regarding directors and executive officers set forth under "Management -- Directors and Executive Officers" in the Company's 1992 Proxy Statement to be filed with the Securities and Exchange Commission is incorporated herein by reference pursuant to General Instruction G(3) to Form 10-K.

Item 11. Executive Compensation

The information regarding compensation of directors and executive officers set forth under "Management -- Compensation of Executive Officers and Directors" and "Management -- Employee Benefit Plans" in the Company's 1992 Proxy Statement to be filed with the Securities and Exchange Commission is incorporated herein by reference pursuant to General Instruction G(3) to Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management

The information regarding security ownership of certain beneficial owners and management set forth under "Principal Shareholders" in the Company's 1992 Proxy Statement to be filed with the Securities and Exchange Commission is incorporated herein by reference pursuant to General Instruction G(3) to Form 10-K.

Item 13. Certain Relationships and Related Transactions

The information regarding certain relationships and related transactions set forth under "Management -- Transactions with Management and Related Parties" in the Company's 1992 Proxy Statement to be filed with the Securities and Exchange Commission is incorporated herein by reference pursuant to General Instruction G(3) to Form 10-K.

PART IV

Item 14. Exhibits, Financial Statement Schedules and Reports on Form 8-K

(a)1 Financial statements - See Index to Consolidated Financial Statements on page F-1 hereof.

(a)2 Financial statement schedules.

Schedules are omitted because of the absence of the conditions under which they are required or because the information required is included in the consolidated financial statements or notes thereto.

(a)3 Exhibits.

Exhibit No.		Description
3.1	--	Articles of Incorporation of the Company, together with all amendments thereto. Filed under exhibit number 3.1 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.
3.2	--	Restated Bylaws of the Company, as amended.
4.1	--	Specimen Certificate for Common Stock of the Company. Filed under exhibit number 4.1 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.
9.1	--	Form of Shareholders Voting Agreement and Irrevocable Proxy entered into by and among David P. Cook, Kenneth W. Anderson, H. Ross Perot, J. Michael Poss, Walter Brothers, John T. Walker, Jr., American President Companies, Ltd., Mitsubishi Corporation and Mitsubishi International Corporation. Filed under exhibit number 9.1 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.
10.1	--	License Agreement dated March 31, 1989 by and between the Company and Amtech Logistics Corporation. Filed under exhibit 10.35 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.
10.2	--	Joint Venture Agreement dated as of October 1, 1991, between the Company and Alcatel AVI S.A. Filed under exhibit number 2.1 in the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 1991 and incorporated herein by reference.
10.3	--	AVI-2 Manufacturing, Distribution and Technology License Agreement, dated as of October 10, 1991, between the Company and Alcatel Amtech S.A. Filed under exhibit number 2.2 in the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 1991 and incorporated herein by reference.
10.4	--	ISO Manufacturing, Distribution and Technology License Agreement, dated as of October 10, 1991, between the Company and Alcatel Amtech S.A. Filed under exhibit number 2.3 in the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 1991 and incorporated herein by reference.
10.5	--	Limited Guaranty Agreement, dated as of October 30, 1991, between the Company and Alcatel AVI S.A. Filed under exhibit number 2.4 in the

Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 1991 and incorporated herein by reference.

10.6 -- 1988 Stock Option Plan of the Company. Filed under exhibit number 10.44 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.

10.7 -- 1989 Stock Option Plan of the Company. Filed under exhibit number 10.45 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.

10.8 -- 1990 Stock Option Plan of the Company. Filed under Appendix A in the Company's Proxy Statement for Annual Meeting of Shareholders on May 24, 1990 and incorporated herein by reference.

10.9 -- 401 (k) Retirement Plan of the Company. Filed under exhibit number 10.46 in the Company's Registration Statement on Form S-1 (Commission No. 33-31209) and incorporated herein by reference.

10.10 -- Amended Employment Agreement dated January 1, 1991 by and between the Company and G. Russell Mortenson.

10.11 -- Amendment to Employment Agreement dated January 10, 1992 by and between the Company and G. Russell Mortenson.

10.12 -- Employment Agreement dated August 1, 1990 by and between the Company and Jeremy A. Landt.

10.13 -- Employment Agreement dated August 6, 1991 by and between the Company and Steve M. York.

10.14 -- Employment Agreement dated August 1, 1990 by and between the Company and William D. Powers.

10.15 -- Consulting agreement dated November 7, 1991 by and between the Company and Michael R. Corboy.

10.16 -- Consulting agreement dated November 7, 1991 by and between the Company and Kenneth W. Anderson.

22.1 -- Subsidiaries of the Company.

24.1 -- Consent of Independent Auditors.

25.1 -- Power of attorney (included on page 20 of this Annual Report on Form 10-K).

(b) Reports on Form 8-K

None were filed during the fiscal quarter ending December 31, 1991.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Dallas, State of Texas on February 25, 1992.

AMTECH CORPORATION

By: _____
Steve M. York
Vice President, Chief
Financial Officer and Treasurer

POWER OF ATTORNEY

We, the undersigned, directors and officers of Amtech Corporation (the "Company"), do hereby severally constitute and appoint G. Russell Mortenson and Steve M. York and each or either of them, our true and lawful attorneys and agents, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1991, and to file the same with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys and agents, and each or either of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys and agents, and each of them, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

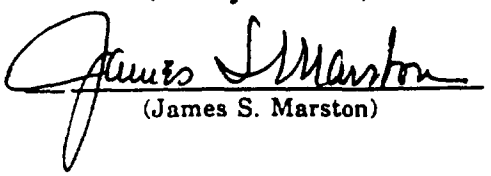
Signature	Title	Date
_____ (G. Russell Mortenson)	President, Chief Executive Officer and Director (Principal Executive Officer)	February 25, 1992
_____ (Steve M. York)	Vice Pre..dent, Chief Financial Officer, and Treasurer (Principal Financial and Accounting Officer)	February 25, 1992

/s/ Kenneth W. Anderson (Kenneth W. Anderson)	Director	February 25, 1992
_____ (Michael R. Corboy)	Director	February 25, 1992
_____ (Ken-Ichi Kubota)	Director	February 25, 1992
_____ (Jeremy A. Landt)	Director	February 25, 1992
_____ (James S. Marston)	Director	February 25, 1992

_____ (Kenneth W. Anderson)	Director	February 25, 1992
_____ (Michael R. Corboy)	Director	February 25, 1992
_____ (Ken-Ichi Kubota)	Director	February 25, 1992
_____ (Jeremy A. Landt)	Director	February 25, 1992
_____ (James S. Marston)	Director	February 25, 1992

_____ (Kenneth W. Anderson)	Director	February 25, 1992
_____ (Michael R. Corboy)	Director	February 25, 1992
_____ (Ken-Ichi Kubota)	Director	February 25, 1992
_____ (Jeremy A. Landt)	Director	February 25, 1992
_____ (James S. Marston)	Director	February 25, 1992

_____ (Kenneth W. Anderson)	Director	February 25, 1992
_____ (Michael R. Corboy)	Director	February 25, 1992
_____ (Ken-Ichi Kubota)	Director	February 25, 1992
Jeremy A. Landt (Jeremy A. Landt)	Director	February 25, 1992
_____ (James S. Marston)	Director	February 25, 1992

(Kenneth W. Anderson)	Director	February 25, 1992
(Michael R. Corboy)	Director	February 25, 1992
(Ken-Ichi Kubota)	Director	February 25, 1992
(Jeremy A. Landt)	Director	February 25, 1992
 (James S. Marston)	Director	February 25, 1992

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Report of Independent Auditors

The Board of Directors and Stockholders
Amtech Corporation

We have audited the accompanying consolidated balance sheets of Amtech Corporation as of December 31, 1991 and 1990, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 1991. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Amtech Corporation at December 31, 1991 and 1990, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 1991, in conformity with generally accepted accounting principles.

Ernst & Young

ERNST & YOUNG

Dallas, Texas
February 7, 1992